Workstream:

Equipment Management

Equipment Work Stream

Implementing an Asset Management Approach to Equipment

Work Stream Members

- Drew Harbinson – Central Equipment
- Mike Mills – Division 7
- Brian Burch – Division 14
- David Vanpelt – Central Equipment
- Terry Gibson - TMT

Guiding Hypothesis

- Equipment is simply an Asset of the Department of Transportation and should be managed accordingly. The current value of this Asset is approx. $700 million with an annual expenditure of approx. $200 million.

- The Role of the Central Equipment Unit is to provide central expertise and support to the Divisions in all facets of equipment/fleet service and performance management, procurement, long range vision, guidance, training and data collection.

- The Role of the Division Equipment Unit is to provide local expertise and support to the divisional units by ordering equipment, servicing and managing their fleet, training, implementing and following good management practices to help meet the targeted level of service goals for the Division.

- The Role of the Mangers and End Users in the NCDOT is to learn and follow good equipment management practices and support the Division and Central Equipment Units in meeting targeted goals for utilization and depreciation of the fleet.

Background and Resources

- Meeting with Steve Varnedoe, Lacy Love and Jon Nance
- “Fleet and Supply Chain Diagnostic Review, Sept 30, 2000” TransTech Management, Inc.
- Business Unit Efficiency Survey
- Private Companies with Fleets
- Construction Companies
- Equipment Superintendent Survey (Attachment A)
- Central Equipment Unit
- AEMP (Association of Equipment Management Professionals)

What We Heard

- Fleet needs to be Right Sized for our Operations
- Purchasing/Delivery Process needs Improvement
- Need to Train Fleet Managers and End Users on Fleet Management Principles

What We Heard Cont'd

- Personnel needs should be reviewed to determine if we are staffed to achieve our goals
- Need to establish a Business Case for Revolving Fund Balances

Findings: Right Sizing the Fleet

- Types of Equipment we need
- Rental vs. Ownership
- %PM’s vs % Repair
- What is the Appropriate Age of the Fleet?
- Spare Equipment

Right Sizing Recommendations

- Complete the Depreciated Life and Utilization Study (Attachment B)
- Establish target of 80% PM's and 20% repair
- Train End Users and Equipment Personnel on strategies to address
  - Rental vs. Ownership
  - Spare Equipment

Findings: Improved Purchasing/Delivery Process

- Titling New Equipment and Receiving License Tags
- Scanning VIN Numbers
- Additional Spec Writer

Recommendations to Improve Purchasing/Delivery Process

- Titling New Equipment and Receiving License Tags process has improved and needs no action at this time.
- Monitor IT's progress on delivering a program to Scan VIN Numbers. Purchase 3 new scanners to support the system.
- Fill one Additional Spec Writer position in Central Unit to expedite the ordering of Equipment and reduce errors in orders.

Findings: Training

- Equipment Employees from Division Equipment Superintendent to Shop Supervisor's
  - Certified Equipment Manager (CEM)
- End Users from Division Engineers to Transportation Supervisors
  - Good Business Practices
  - Balancing the Fleet by Right Sizing
  - Balancing the Fleet through Relocation
  - Rent vs. Purchase analysis
  - Spare Fleet Management
  - What is included in the Rental Rate?
  - What is a Flat Rate?
  - Purchasing Strategies to Maximize Investment
  - Business Case for why Utilization is Important

Training Recommendations

- Equipment Employees (Field and Central)
  - Certified Equipment Manager training (CEM)
  - Participate in Pilot field testing performed by Field Measurements, Inc. of Durham
  - Division Management level training to be completed by end of August 2008 to benefit 2009 equipment buy

Training Recommendations Cont'd

- End User Training Topics
  - Business Case for Change
    - Why is this Important?
    - What is Fleet Management?
      - Utilization/Depreciation Overview
        - Business Case Presentation
      - Fleet Condition
      - Timely Preventative Maintenance (PM's)
      - %PM vs. %Repair
      - Central vs. Div vs. County/Unit Fleet Strategies
      - Spare Fleet Strategies
    - Private Rental vs. Own
    - Purchasing Strategies
    - What can you start doing when you leave today?

Training Recommendations Cont'd

- End User Training Schedule (Tentative)
  - Div Engineers Overview — June 2008
  - Div. Ops, Maint, Const, Equip Supers
    - Div 10-14 — Hickory — July 15, 2008
    - Div 5-9 — Raleigh — July 17, 2008
    - Div 1-4 — Greenville — July 22, 2008
  - Div TS III and Up (In each Division)
    - To Be Scheduled — Oct 1-Dec 31 2008

Training Recommendations Cont'd

- Follow Up Training (Culture Change)
  - Operations Staff Meeting
    - Utilization Reports with emphasis areas each month
    - Timeliness of PM's
    - Divisional Depreciated Value
  - Maintenance Conference Feb 2009
    - Overview Presentation of Fleet Management Concepts
    - Breakout Session on Reporting Methods

Business Case
Training Example: Dump Trucks

Truck	Year	ABC	AcqVal	Rent Hrs	Utilization	Tot Mx Cst
A	1991	B	$26,671	1	0	$379
B	1998	B	33,719	790.5	40.33%	7,076
C	1998	B	35,106	1829.5	86.30%	7,680
D	1998	B	35,905	134	6.37%	1,471
E	1998	B	35,106	716.5	34.05%	2,173
F	1999	B	41,765	1395	66.30%	7,164
G	2000	B	46,249	521	19.05%	3,576
H	2000	B	41,831	559	26.57%	4,510
I	2000	B	41,831	1806	85.84%	8,056
J	2001	B	53,137	731.5	34.77%	4,072
K	2003	B	38,625	944.5	44.89%	8,078

Selected a group of dump trucks from a division report. Group was selected at random in an attempt to get all or most of a class of equipment in the Division and still have a slide that could be read by semi-senior people.

Training Example: Dump Trucks

Truck	Year	ABC	AcqVal	Rent Hrs	Utiliz	Tot Mx Cst	Cst/RntHr
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D	1998	B	35,905	134	6%	$ 1,471	$ 10.97
E	1998	B	35,106	716.5	34%	$ 2,173	$ 3.03
F	1999	B	41,765	1395	66%	$ 7,164	$ 5.14
G	2000	B	46,249	521	19%	$ 3,576	$ 6.86
H	2000	B	41,831	559	27%	$ 4,510	$ 8.07
I	2000	B	41,831	1806	86%	$ 8,056	$ 4.46
J	2001	B	53,137	731.5	35%	$ 4,072	$ 5.57
K	2003	B	38,625	944.5	45%	$ 8,078	$ 8.55

To get a sense of how these units look, let's convert their total costs to cost per rental hour. Where truck A appeared to be inexpensive to operate, now it's the most expensive unit.

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K	2003	B	38,625	944.5	45%	$ 8,078	$ 8.55
	Avg Val		$39,000				
	Avg Salv		$12,000				
	Rec/Yr		$ 3,375				
	Rec/Hr		$ 1.62				

Let's get more information about the units. Average original value of a unit is $39,000. They have a scheduled life cycle of about 8 years at which time we can get about $12,000 at auction for one. As a result they cost the us about $3400 per year in depreciated value, thus we need to recoup about $1.60 per hour during the life of the truck to have enough reserves to purchase a replacement

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	Avg Val		$39,000		Tot	$54,234	
	Avg Salv		$12,000		Avg	$ 4,930	
	Rec/Yr		$ 3,375				
	Rec/Hr		$ 1.62		Cst/Hr	$ 2.37	

We spent about $54,000 maintaining this mini-fleet or about $4900 per unit. Like depreciation, if we take that to a cost per hour on an annual basis, we need about $2.40 per hour to keep hour mini-fleet on the road.

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	Avg Val		$39,000		Tot	$54,234	
	Avg Salv		$12,000		Avg	$ 4,930	
	Rec/Yr		$ 3,375				
	Rec/Hr		$ 1.62		Cost/Hr	$ 2.37	
			Indirect Cost			$ 1.78	

Historically, the Equipment Unit spends about $0.75 on indirect costs for every dollar we spend on direct maintenance costs…. That is facilities maintenance, shop supplies, utilities, liability insurance, office staff, etc.

If we use the direct cost per hour of $2.37, then we can expect to spend about $1.78 per hour on indirect costs.

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K	2003	B	38,625	944.5	45%	$ 8,078	$ 8.55
	Rec/Hr		$ 1.62				
	Dir Cst/Hr		$ 2.37				
	Ind Cst/Hr		$ 1.78				
	Rental Rt		$ 5.77				

If you're one of those folk who have seen our "rental rates" road show, then you know what we just did was compute the rental rate for this group of dump trucks…. $5.77 per hour.

But since it was all based on using every truck 2080 hours per year, it's the administrative rate and these are support units, ie, charged directly to a project. So, the rate needs to be adjusted for how often they were charged to a project during this period or their utilization.

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K	2003	B	38,625	944.5	45%	$ 8,078	$ 8.55
				Avg	40%		
	Rec/Hr		$ 1.62				
	Dir Cst/Hr		$ 2.37				
	Ind Cst/Hr		$ 1.78				
	Admin Rt		$ 5.77				
	Support Rt		$ 14.28				

If we adjust the administrative rate for the average 40% utilization we get a support rate of about $14.28 per hour.
In reality, we might adjust these rates up or down depending on the economic forecast for new equipment, fuel, repair parts, etc, to ensure we reflect an accurate cost of maintaining the fleet. But for today, we'll assume this rate is perfectly accurate.
Let's play a little what-if. What if we decide we'll find some way to do without truck A… the $379 per hour truck is out of line with the rest of our mini-fleet. Besides, it'll be old enough to vote in the presidential election and it was only used an hour all year anyway. … So you turn it in.

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J	2001	B	53,137	731.5	35%	$ 4,072	$ 5.57
K	2003	B	38,625	944.5	45%	$ 8,078	$ 8.55
				Avg	44%		
	Rec/Hr		$ 1.62				
	Dir Cst/Hr		$ 2.35				
	Ind Cst/Hr		$ 1.77		New Rt		Change
	Admin Rt		$ 5.77		$ 5.74		-1%
	Support Rt		$ 14.28		$12.92		-10%

With that unit out of our mini-fleet, then we reduced our rental rate by 10 percent. Not a bad pay back for getting rid of an old dump truck no one wanted to use. What about truck D? It costs $10.97 a rental hour last year and wasn't used but 3 weeks all year. What if we could work around that…..

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J	2001	B	53,137	731.5	35%	$ 4,072	$ 5.57
K	2003	B	38,625	944.5	45%	$ 8,078	$ 8.55
				Avg	49%		
	Rec/Hr		$ 1.62				
	Dir Cst/Hr		$ 2.29				
	Ind Cst/Hr		$ 1.72		New Rt		Change
	Admin Rt		$ 5.77		$ 5.63		-2%
	Support Rt		$ 14.28		$11.56		-19%

Just lowered our rental rate another 9 percent.

Now with the elimination of two low utilization pieces we reduced our rental rate for this mini-fleet by 19%.

Can we <u>really expect</u> to dispose of 20% of the a division fleet like we did here?

Probably not.

But let's take a broad look at this division.

Training Example: Dump Trucks

	Rent Pd FY07	$ 9,099,625
Reduction		Savings
1%		$ 90,996
2%		$ 181,993
3%		$ 272,989
4%		$ 363,985
5%		$ 454,981
6%		$ 545,978
7%		$ 636,974
8%		$ 727,970
9%		$ 818,966
10%		$ 909,963

Last fiscal year they paid just over $9M in equipment rent. Reducing their equipment rental costs just 3% would have given them over a quarter million dollars savings.

In short, it doesn't take much before we're looking at some serious savings.

Training Example: Dump Trucks Final Thoughts

- Guaranteed Savings?
  - No, just beginning to adjusts rates totally for first time since they were set up in 2003
  - Right sizing your fleet does mean you get the best value possible
- Good resource management is the right thing to do!

Personnel Findings

- Establish Fleet Management as a primary responsibility of Division Equipment
- Establish Personnel necessary to provide prompt and accurate equipment delivery
- Right Size Equipment Shop Staffing
- Recruitment/Retainage of VERT’s

Personnel Recommendations

- Work with OSP to establish Fleet Manager Banded Classification(s) (Attachment C)
- Create Asst. Division Fleet Manager (Attachment D)
- Additional Spec Writer for Central Office
- Right Sizing the Equipment Shop Staffing
  - 80% PM vs. 20% Repair
  - Optimize the fleet, reduce repair, evaluate staffing requirements
- Recruitment/Retainage VERT's
  - Implement Tool Allowance July 1,2008 (Attachment E)

Business Case for Revolving Fund Balance

- Facts:
  - In 2005 directed to decrease Equipment Purchases by $10 million
  - In 2006 directed to suspend all Equipment Procurement
  - Divisions continued to order needed Equipment which generated a backlog
  - Divisions continued to pay rent on Equipment during this time period
- Results:
  - $94 million carryover in 2008

Business Case for Revolving Fund Balance Cont'd

- Results Cont'd:
  - As of 5/23/2007 $109,928,919 budgeted
    - Committed: (on order) -$21,638,681
    - Committed: (not ordered) -$12,000,000
    - Expended: -$50,632,345
    - Reserved (Fuel System) -$ 7,000,000
    - **Balance** **$15,657,892**
    - Estimated Expenses
      May-June 2008 $12,000,000
    - **Unreserved Balance** **$ 3,657,892**

Recommendation
Revolving Fund Balance

- Do nothing at this time.
- Balances will sometimes accrue due to “buy windows” for particular types of equipment. These balances do not indicate a lack of need. The dollars are committed to Division Equipment which has been ordered but not yet procured.
- Continue to monitor the balances quarterly.

Equipment Work Stream

Questions?